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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,572

07/18/2006

Peter Kristian Bjornsson

09546-030US1

6472

26211 7590 08/06/2008

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EXAMINER

DUONG, THO V

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

08/06/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,572	<b>Applicant(s)</b> BJORNSSON ET AL.	
	<b>Examiner</b> Tho v. Duong	<b>Art Unit</b> 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 27-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/11/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it is longer than 150 words and contains phrases which can be implied "This relates to". Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: on page 8, lines 32-33, the claim numbers "15 to 26" are referred in the specification. However, the number of claims is subjected to change during the prosecution. It is suggested to remove the claim number from the specification.

Appropriate correction is required.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "17" and "12" have both been used to designate the second end area (page 10, line 23, and page 11, line 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed subject matter of "the heat exchanger plate extends between a primary edge zone and a secondary edge zone in parallel with a central extension plane, an upper plate plane and a lower plate plane" and "wherein the base surface is located at an upper level in the proximity of the upper plate plane in the proximity of the edge area of the primary porthole and sinks successively to a lower level in the proximity of the lower plate plane in the proximity of the secondary edge zone" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Applicant does not disclose (figure 4) that the base surface (27) is located at an upper level in the proximity of the upper plate plane (14) in the proximity of the edge area (25) of the primary hole (21) and sinks successively to a lower level in the proximity of the lower plate plane (15) in the proximity of the second edge zone (12a). Furthermore, applicant does not disclose that the central, upper and lower plate planes (13-15) are parallel with the heat exchanger plate. In fact, these planes are in inclined or declined position with the heat exchanger plate.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing

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sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 41-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 41 recites the limitation "the height of the plate interspaces" in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27-52 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bergqvist et al. (US 4,987,955). Bergqvist discloses (figures 1-4 and figure A as see bellow) a plate package for a plate heat exchanger including at least two identical heat exchanger plates having a plate interspace therebetween, wherein the heat exchanger plate extends between a primary edge zone and a secondary edge zone in parallel with a central extension plane, an upper plate plane and a lower plate plane, wherein the central extension plane includes a center axis dividing the heat exchanger plate into a primary part and a secondary part, the heat exchanger plate comprising a first end area, a second end area, a central heat transfer area (9), which extends between the primary edge zone and the secondary edge zone from the first area to the second end area; a primary porthole (11a) and a secondary porthole (11b), which extend through the heat exchanger plate in the first end area and each of which is surrounded by a respective adjoining edge area, wherein the primary porthole (11a) is located on the primary part and the secondary porthole (11b) is located on the secondary part, a

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distribution area which extends on the first end area and has a base surface extending from the primary porthole (11a) to the central heat transfer area, wherein the base surface is located at an upper level in the proximity of the upper plate plane in the proximity of the edge area of the primary porthole and sinks successively to a lower level in the proximity of the lower plate plane in the proximity of the secondary edge zone; the base surface sinks continuously along a border to the central heat transfer area from the upper level to the lower level and from the proximity of the primary edge zone to the proximity of the secondary edge zone; the distribution area includes a number of projections and depressions (15), and substantially each projection extends in a respective direction running from the primary port hole towards the central heat transfer area; wherein the projection (15) has a length which is substantially shorter than the distance from the primary porthole to the central heat transfer surface area along the direction of the projection. Regarding claim 35, wherein substantially each depression (depression formed between two projections 15, figure 2) extends substantially perpendicular to the direction of an adjacent projection, wherein the direction of the projection is considered to be radial direction to center of the port hole. Regarding claims 36, 37 and 39, Bergqvist discloses (column 3, lines 45-60) the heat exchanger plate is symmetrical with regard to the center axis so that substantially each depression has a shape and a position corresponding to a shape and a position of a projection on the other side of the center axis, and each depression is designed to abut a projection of an adjacent turned heat exchanger plate in the plate package. Regarding claim 28, the limitation of "compression-molding" is not germane to the issue of the patentability of the device itself. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of

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the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, the heat exchanger plate in the product by process claim is the same as or obvious from the heat exchanger plate of Bergqvist, the claim is unpatentable even though the prior heat exchanger plate was made by a different process.

Regarding claims 38 and 49, applicant is reminded that the examiner must interpret the limitation as broadly as it reasonably allows, in which Bergqvist discloses (figure 2) each projection (15) and depression (between the projections) having two long sides and two ends wherein one of the ends of the projections on the secondary part extends to one of the long side of a depression and one of the ends of the depression on the primary part extends to one of the long sides of a projection.

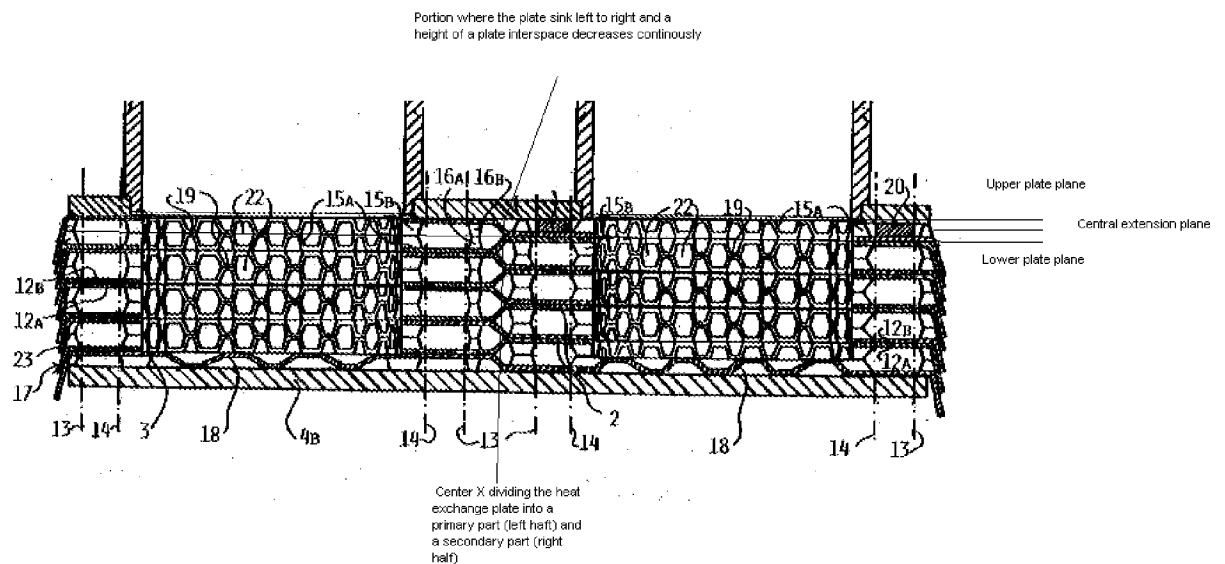


Figure A: The modified figure corresponds to figure 4 with limitation shown..

### Conclusion



The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pfeiffer (US 4,781,248) discloses a plate heat exchanger.

Karlsson et al. (US 5,988,269) disclose a plate heat exchanger with grooves.

Yoshida (US 6,394,178) discloses a heat exchanger.

Leuthner et al. (US 7,040,387) discloses a plate heat exchanger with guides.

Kallrot (US 5,992,510) discloses a stacked plate heat exchanger.

A. H. Wakeman (US 2,616,671) discloses a heat exchanger.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Tho v Duong/  
Primary Examiner, Art Unit 3744